

**LE CORBUSIER:
THE MACHINE
AND THE GRAND DESIGN**

NORMA EVENSON

GEORGE BRAZILLER NEW YORK

A CONTEMPORARY CITY

According to Le Corbusier, when asked to prepare a town planning exhibit for the Salon d'Automne in Paris in 1922, he inquired, "What is town-planning?" and was told by the head of the section, "Well, it's a sort of street art-for shops, shop signs and so on; it includes such things as the glass knobs on the stair ramps of houses." Le Corbusier replied, "All right. I will do you a monumental fountain, and behind it I will put a town of 3 million inhabitants."¹

The resulting exhibit, which included a 100-square-meter diorama titled "A Contemporary City for Three Million People," was greeted, in the designer's words, "with a sort of stupor; the shock of surprise caused rage in some quarters and enthusiasm in others."² Incorporating a rigidly geometric plan with a scheme of austere uniform architecture, vast stretches of open space and a system of motor freeways, the proposed city appeared to some an audacious and compelling vision of a brave new world, and to others a frigid and megalomaniacally scaled negation of the familiar urban ambient.

The purpose of the scheme had been to establish a generalized solution to the problem of urban form; Le Corbusier claimed, "My object was not to overcome the existing state of things, but *by constructing a theoretically water-tight formula to arrive at the fundamental principles of modern town planning.*"³ These principles, once correctly formulated, could then presumably be adapted to any specific urban case.

Le Corbusier was by profession an architect already one of the leaders of the modern movement and his approach to city planning was that of an urban designer. In the field of architecture he had sought to develop a standardized solution to the problem of the dwelling, believing that just as industry had produced standardized and presumably perfected object-types, a proper formulation of the problem of the dwelling could produce a standardized and universally applicable house-type. It was with this assumption that Le Corbusier coined his famous phrase, "a house is a machine for living," maintaining that a house should be designed to function with the same logic as a machine. With his design for the City for Three Million, Le Corbusier was extending this line of thought to produce a standardized city.

For most of his career Le Corbusier's relation to the planning establishment was that of an outsider. He held no official planning post, and was often at odds with authorities. Le Corbusier's influence on urban design, therefore, was largely indirect, self-generated, and maintained through his own initiative. Even though he was denied planning commissions for most of his lifetime, he may be credited with establishing one of the most pervasive urban images of our time—a concep-

tion of environment which, for better or worse, still underlies much contemporary design.

Although, superficially, the City for Three Million seemed sufficiently radical to alienate traditionalists, the plan synthesized many prevailing concepts of urban design, and incorporated existing trends in urban theory.

To Le Corbusier, as to many others, the modern city represented a problem to be solved. As he phrased it, "A town is a tool. Towns no longer fulfil this function. They are ineffectual; they use up our bodies; they thwart our souls. The lack of order to be found everywhere in them offends us; their degradation wounds our self-esteem and humiliates our sense of dignity. They are not worthy of the age; they are no longer worthy of us."⁴

Similar comments had been directed at the urban environment for almost a century, accompanying the transformations of the Industrial Revolution. From the nineteenth century onward, the cities of the Western world had been subject to unprecedented and uncontrolled expansion. As urban population grew, land use intensified and city boundaries sprawled, while industrial establishments contributed noise and pollution, combining with the growing blight of congested city slums to create an environmental squalor of overwhelming scale. Few municipalities had been equipped either in terms of administrative organization or technical skill to cope with the new civic burdens, and planning efforts were for the most part piecemeal and ineffectual in terms of the magnitude of the task.

The first major city to undertake large-scale redevelopment had been Paris in which, beginning in 1853, the Municipal Prefect, Baron Georges-Eugene Haussmann (1809-1891), having been granted virtually dictatorial powers by Napoleon III, was able to direct sweeping renovations. The most conspicuous results of his work were the new boulevards created by means of massive demolition and rebuilding, providing the city with a system of broad thoroughfares, together with a large volume of new construction. Haussmann's work indicated the scale of operations necessary for comprehensive results in the modern city, and in terms of both civic embellishment and technical improvements, Paris provided a model for many other municipalities. In spite of the outward success of the Parisian renovations, however, it was apparent that major urban problems were too deep-rooted and complex to be solved by upgraded utilities, improved circulation, and urban beautification.

The chronic problem of the rapidly expanding city lay in what seemed to be a continuous deterioration of the living environment. The poor were increasingly condemned to overcrowded, closely built tenements, while even in prosperous districts building congestion prompted Patrick Geddes (1854-1932), the British biologist and sociologist, to designate much upper-class housing as "super-slums." The phenome-

nal size of the modern city and the growing inaccessibility of the rural periphery produced an increasing desire to incorporate natural elements within the city, while a growing consciousness of the aesthetic and hygienic value of fresh air and sunlight prompted efforts to reduce building density. A distaste for living conditions in the central city, had, with the development of rail transport, led many to seek more salubrious suburban settlements, a trend serving both to extend the area of urban expansion and to place increasing burdens on the transportation system.

In the **view** of some, progressively inflated urban land values abetted by speculation and constant population pressures would render the large central city perpetually unable to provide a humane environment, and from the turn-of-the-century, the Garden City movement founded in England by Ebenezer Howard (1850-1928) sought to deflect the growth of urban population through a systematic program of decentralization based on the creation of self-sufficient new towns. Such towns would embody common ownership of land, be restricted in population, and physically limited in size through the employment of greenbelts. Although in theory Garden City planning did not presuppose any specific urban form, the movement came to be associated with a low-density, essentially picturesque, design.

While the frequently appalling image of the industrial city produced an understandable reaction in the small-town ideal of the Garden City supporters, as the twentieth century advanced, it inspired in others a romantic adulation of the new urban form and scale. The modern movement in architecture embodied an enthusiastic acceptance of the conditions of modern urban life, and a determination to employ all the resources of advanced technology to enable architecture to achieve a form suitable to the spirit of the modern age. Repudiating nostalgia for the past, the theorists of the modern movement revealed in a new mythology of modern man, conceived as a thoroughly adapted participant in an industrial urbanized society. The architect Henry van de Velde (1863-1957) chose to categorize man as "modern" or "premodern." Premodern man was characterized as a sentimental being seeking romantic illusion and addicted to meaningless thought patterns. Modern man, on the other hand, was seen as the product of an era of machine invention. Realistic and rational, "he eats, sleeps, works and amuses himself efficiently, sweeping aside irrelevant obstacles. -s

Recognizing modern society as primarily urban-centered, architects began to envision architecture in terms of a new and comprehensively ordered urban ambient. This concern for the design of the total civic environment may be seen in a project exhibited in 1904 by the French architect Tony Garnier (1869-1948).⁶ This scheme, which he called the Cite Industrielle, embodied a thoroughgoing presentation of an imaginary community occupying a functionally zoned site. The architectural design was characterized by a reliance on concrete, and the

simplified geometric clarity of the building forms anticipated somewhat the stylistic manifestations of the International Style of the 1920's.

Le Corbusier had admired Garnier's scheme, observing that "one experiences here the beneficent results of order. Where order reigns, well-being begins."⁷ He also found praiseworthy Garnier's employment of open space within the residential districts, pointing out that "hedges and fences would not be allowed. In this way the town could be traversed in every direction, quite independently of the streets, which there would be no need for a pedestrian to use. The town would really be like a great park."⁸

Garnier's urban conception may be linked to the nineteenth century humanitarian interest in model workers' communities, and to the growing concern for creating standards of hygienic and aesthetically agreeable civic design. His scheme emphasized that the realities of the modern world need not be incompatible with a measure of urban grace.

An even more emphatic and emotionally lyrical affirmation of the modern city soon appeared in the writings of the Italian Futurists, who eulogized the cult of modernism with a poetic imagery drawn from the forms of industrialism and the great metropolis. Among the first to hymn the joys of the motor car, the Futurists claimed that "The era of the great mechanised individuals has begun, and all the rest is Palaeontology."⁹ "We must invent and rebuild *ex novo* our Modern city like an immense and tumultuous shipyard, active, mobile and everywhere dynamic, and the modern building like a gigantic machine."¹⁰

The Futurist conception of urban environment was embodied in a visionary project exhibited in 1914 by the architect Antonio Sant'Elia (1888-1916). Initiated by a competition design for a new railway station in Milan, the exhibition drawings presented fragments of an imaginary new metropolis incorporating high-rise building with elaborate multilevel systems of mechanized transport, the station complex combining rail and road transportation with an air terminal. The scheme was characterized by an emphasis on works of engineering, with bridges, viaducts, and motorways acquiring a seeming visual dominance over the works of the architect.

Le Corbusier's City for Three Million was in part a fusion of Futurist conceptions of speed, movement, and mechanization, with a Garden City emphasis on greenery and open space. As Le Corbusier described the plan, he stated, "The basic principles we must follow are these: 1. We must de-congest the centers of our cities. 2. We must augment their density. 3. We must increase the means of getting about. 4. We must increase parks and open spaces."¹¹ One could, by means of his plan, presumably both have one's cake and eat it; achieve the outdoor benefits of low-density living without sacrificing a high concentration of urban population. One could, moreover, have order, efficiency, and mechanization without foregoing poetic beauty in one's surroundings.

Like many practitioners of the modern movement, Le Corbusier

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adhered to what might be termed a romantic rationalism. In creating his scheme, he claimed, "I relied only on the sure paths of reason, and having absorbed the romanticism of the past, I felt able to give myself up to that of our own age, which I love."¹² To Le Corbusier the poetry of the city lay in its symbolic manifestation of the power of human action, of the ordering will of the human intellect, and although the plan incorporated natural elements, the geometric framework predominated.

Seeing the city as a perfect expression of man's ability to master his environment, Le Corbusier exulted: „A City ! It is the grip of man on nature. It is a human operation directed against nature, a human organism both for protection and for work . It is a creation. Poetry also is a human ~~act-the~~ harmonious relationships between perceived images. All the poetry we find in nature is but the creation of our own spirit. A town is a mighty image which stirs our minds. Why should not the town be, even today, a source of poetry ?"¹³

In terms of physical design, Le Corbusier's dominant predilection was classical. Although some architects of the modern movement liked to emphasize a total divorce from the past, Le Corbusier preferred to see the embodiment in modern forms of certain traditional values of scale and proportion. He wrote lyrically and perceptively of the drama of the Acropolis (*Fig. 1*), of the majesty of ancient Rome (*Fig. 2*), and admirably of those who within the Renaissance tradition perpetuated the ordering principles of the classical world (*Fig. 4*) . He loved the city of Istanbul, observing the serenity of its profile and finding in its many domes the "suave melody of very gentle forms."¹⁴ He also praised the abundant use of greenery within this city.

The irregular contours and verticality of the Middle Ages he considered jarring, and complained, "A city can overwhelm us with its broken lines; the sky is torn by its ragged outline. Where shall we find repose?" To Le Corbusier, the choice was between "a state of barbarism and a state of classicism."¹⁵ In spite of his advocacy of high-rise building, Le Corbusier found the jagged skyline of New York a wounding embodiment of "confusion, chaos and upheaval... beauty is concerned with quite different things; in the first place, it has order for its basis."¹⁶

The great emphasis which Le Corbusier placed on geometric ordering in his writings of the 1920's seems to have been in part a reaction against the picturesque aesthetic which had made considerable inroads into urban design, receiving impetus through interpreters of Camillo Sitte (1843-1903). A Viennese, he had published a book called *Der Stadtebau*, containing an examination of the aesthetics of urban design. The book counteracted the mechanistic approach and insensitivity of scale seen in much nineteenth-century planning, basing illustrative examples on a varied historical range of civic art. Although Sitte had not been exclusively concerned with picturesque design, his

analyses of the asymmetrical space enclosures, broken vistas, and intimate groupings characteristic of many medieval towns provided a justifying logic for nongeometric composition, and led some to regard him as essentially a romantic medievalist.

A particularly misleading emphasis on picturesque design had appeared in an influential French version of Sitte's book, and this evidently inspired Le Corbusier to employ denunciation of Sitte as a means of reinforcing his own views.¹⁷ He reported that "I read Camillo Sitte, the Viennese writer, and was affected by his insidious pleas in the direction of the picturesque in town planning. Sitte's demonstrations were clever, his theories seemed adequate; they were based on the past, and in fact WERE the past, but a sentimental past on a small and pretty scale, like the little wayside flowers. His past was not that of the great periods, it was essentially one of compromise."¹⁸ He concluded that Sitte's book was "a most wilful piece of work; a glorification of the curved line and a specious demonstration of its unrivalled beauties. Proof of this was advanced by the example of all the beautiful towns of the Middle Ages; the author confounded the picturesque with the conditions vital to the existence of the city."¹⁹

In what may have been an overreaction, Le Corbusier set out in a determined glorification of the straight line and the right angle. "I .../repeat that man, by reason of his very nature, practices order; that his actions and his thoughts are dictated by the straight line and the right angle, that the straight line is instinctive to him and that his mind apprehends it as a lofty objective."²⁰

.. "Where the orthogonal is supreme, there we can read the height of a civilization. Cities can be seen emerging from the jumble of their streets, striving towards straight lines, and taking them as far as possible. When man begins to draw straight lines he bears witness that he has gained control of himself and that he has reached a condition of order. Culture is an orthogonal state of mind. Straight lines are not deliberately created. They are arrived at when man is strong enough, determined enough, sufficiently equipped and sufficiently enlightened to desire and to be able to trace straight lines."²¹

Le Corbusier saw the history of many European cities as a disordered accretion of accidental patterns, with curving streets following the "pack donkey's way." Man, by contrast, "walks in a straight line because he has a goal and knows where he is going." To Le Corbusier, whatever reasons may have promoted the nongeometric design of the past. "a modern city lives by the straight line, inevitably; for the construction of buildings, sewers and tunnels, highways, pavements. The circulation of traffic demands the straight line; it is the proper thing for the heart of a city. The curve is ruinous, difficult and dangerous; it is a paralyzing thing. The straight line enters into all human history, into all human aim, into every human act."²²

To Le Corbusier, as to the theorists of the Renaissance, geometry

was more than a matter of aesthetics; it was the reflection of natural order. "Geometry ~~is~~ the means, created by ourselves, whereby we perceive the external world and express the world within us. Geometry is the foundation . It is also the material basis on which we build those symbols which represent to us perfection and the divine."²³ Although he thus imbued his work with some of the ordering principles of academic design, Le Corbusier, ~~like~~ most modern architects, sought to disassociate himself from academicians, differentiating between those whom he felt had grasped the spirit and scale of classicism and those who merely repeated ~~its~~ forms (*Fig. 3*).

Within Paris, although he frequently poured scorn on academic classicism, Le Corbusier had unbounded admiration for works of the Renaissance and Baroque traditions, which he viewed as "magnificent attempts, rays of light amidst the barbaric stirring."²⁴ Such he considered the Place des Vosges built under Louis XIII, the Champs de Mars developed under Louis XV, and the Etoile and main roads leading to Paris designed under Napoleon. His particular respect, however, was reserved for the grand monarch Louis XIV, whose ambitious projects, including La Place Vendome, Les Invalides, and the great Baroque palace city of Versailles exemplified this ruler's confident authority. In his writings, Le Corbusier paid homage to a great town planner. This despot conceived immense projects and realized them. Over all the country his noble works still fill us with admiration. He was capable of saying, 'We wish it,' or 'Such is our pleasure.'²⁵ In the same grand tradition Le Corbusier deemed "that magnificent legacy left by a monarch to his people: the work of Haussmann under Napoleon 111."²⁶

Le Corbusier continually chastised governmental authorities of his own time for their timidity, for their failure to act in the bold spirit which had created the great civic achievements of the past. Reverence for the past, he contended, did not consist of slavishly copying its forms or preserving its effects, but in grasping the essence of a tradition of far-reaching action and 'Ordered accomplishment. Needless to say, he considered his own civic schemes a perfect embodiment of this tradition.

A CITY FOR THREE MILLION PEOPLE

The plan which Le Corbusier produced for the City for Three Million consisted of a rectangle containing two cross-axial major streets focusing on the center (*Figs. 5-6, 8*). In its essential geometric outlines the plan was rooted in one of the oldest traditions of urban design, the cross being perhaps the most ancient intuitive gesture by which mankind takes possession of a space, and it ~~is~~ believed that the oldest symbolic representation of a city is an Egyptian hieroglyph comprising a cross within a circle. The design contained elements of the traditional Roman plan based on the military encampment, and resembled as well the ritually conceived pattern of ancient Indian towns. In the Roman

town the crossing of the principal streets marked the site of the forum; in India, the auspicious meeting place of the elders and quarters of the highest caste. In the City for Three Million the center provided the commercial district—a complex of twenty-four identical cruciform skyscrapers which would "contain the city's brains, the brains of the whole nation [Figs. 7, 9]. They stand for all the careful working out and organization on which the general activity is based. Everything is concentrated in them: apparatus for abolishing time and space, telephones, cables and wireless; the banks and business affairs and the control of industry; finance, commerce, specialization."²⁷

To the left of the business district would lie a civic and cultural center, beyond which would extend a rectilinear, but picturesquely landscaped park (Fig. 9). The major street network would embody, in addition to the central cross axis, a large-scale grid and diagonal pattern relating to regional routes, while a smaller grid would define the residential superblocks surrounding the center. Within the residential districts, apartment housing presented a dual configuration, either defining the perimeter of a superblock or following an independent pattern of setbacks (*redents*) within areas of greenery (Fig. 10). The industrial district would be sited outside the city and separated from it by a greenbelt.

Although in the design presentation of the City for Three Million Le Corbusier concentrated his efforts on a portrayal of the central area, the total urban scheme incorporated a system of incorrectly termed "Garden Cities" sited beyond the surrounding greenbelt. Although the Garden City concept had been based on the idea of self-contained communities providing both residence and employment, such towns could theoretically develop into a system of satellites in which a larger center might furnish certain services not found in the outlying towns. The City for Three Million was not a true satellite system, as defined by Ebenezer Howard, however, for the Garden Cities would serve only as dormitory suburbs for workers in both the central city and the industrial area, and of the three million people for whom the project was designed, over two million would live in the Garden Cities. (It may be noted that Le Corbusier tended to use the term "Garden City" rather loosely, frequently misusing it to describe what were in fact residential suburbs.²⁸)

By and large Le Corbusier was unsympathetic to the suburban ideal of the single family house, pointing out that such housing was wasteful of roads and utilities, encouraged urban sprawl, and through its extensive land coverage, succeeded in negating the virtues of seclusion and peaceful rural atmosphere which its inhabitants had initially sought. Repeatedly in his writings Le Corbusier would contrast the pattern of land coverage achieved through individual houses on small plots with the building pattern which he himself favored, that of large apartment blocks widely spaced in landscaped areas. The advantage of this, he

never tired of stressing, lay in a greater economy of circulation and services, the provision of large park and sport facilities, and also in the creation of greater privacy and vista for individual dwelling units.

Part of Le Corbusier's opposition to the Garden City concept, as well as the suburban movement, lay in his conviction that it deflected attention from what he deemed the primary problem in city planning: renovating and revitalizing the central city. Without a thoroughgoing renewal of the city center, he felt that efforts to improve outlying areas were irrelevant.

In terms of population, Le Corbusier envisioned the center of the city complex as inhabited primarily by the administrative and intellectual elite. "As the seat of power (in the widest meaning of the word; for in it there come together princes of affairs, captains of industry and finance, political leaders, great scientists, teachers, thinkers, the spokesmen of the human soul, painters, poets and musicians), the city draws every ambition to itself: it is clothed in a dazzling mirage of unimaginable beauty; the people swarm into it. Great men and our leaders install themselves in the city's centre So a classification of city dwellers would give us three main divisions of population: the citizens who live in the city; the workers whose lives are passed half in the centre and half in the garden cities, and the great masses of workers who spend their lives between suburban factories and garden cities."²⁹

Within the central portion of the city, the architectural components were simplified to two major building types, the centrally zoned sixty-story cruciform skyscrapers with indented glass walls, which contained the business and administrative activities of the city, and twelve-story apartment houses occupying the surrounding urban area (*Fig. 10*). Defending his scheme against possible charges of monotony, Le Corbusier cited an axiom of the Abbe Laugier advocating "uniformity in detail,"³⁰ arguing that the urban design of all great periods had been marked by architectural unity. "Everywhere, before the disturbing influences of the nineteenth century, men's houses were boxes of the same nature *There was a universal standard and complete uniformity in detail.* Under such conditions the mind is calm."³¹

Le Corbusier saw no desirability in mixed-use areas, determining that, "Family life ... will be definitely banished from the centre of our city. It seems most probable, as things are, that the skyscraper cannot adequately provide for family life; for its internal economy demands so elaborate a system that if one of these structures is to pay, only business can afford the cost."³²

For the apartment housing, two building types were developed (*Fig. 11*), one, projected for moderate-cost dwellings, extended around the superblock periphery to enclose a large central garden, while the other, intended for more luxurious flats, embodied a continuous slab sited within landscaped grounds, and creating a linear pattern of setbacks separated from, but overlaying, the street grid. The apartment units,

which Le Corbusier called "freehold maisonettes," were related to a prototypical standardized dwelling termed the "Citrohan house" which Le Corbusier exhibited at the Salon d'Automne in 1922.³³ Each apartment was designed as a two-story unit containing a double-height living room and adjoining covered terrace (Figs. 13-14). Describing this housing, Le Corbusier observed, "The 'freehold maisonettes' [maisonnettes - les Villas] represent a new dwelling formula for the large city. Each apartment is, in reality, a little house with a garden. situated 11 meters not how high above the street"³⁴ (Figs. 12, 15).

Considering the family as a somewhat flexible unit, whose domestic needs would vary through time, Le Corbusier was prophetic in viewing the modern city dweller as essentially a nomad having increasingly fewer domestic possessions, and requiring more built-in equipment. Describing his conception of the dwelling unit, the architect stated, "We must never, in our studies, lose sight of the purely human cell, 'the cell which responds most perfectly to our physiological and sentimental needs. We must arrive at the 'house-machine,' which must be both practical and emotionally satisfying and designed for a succession of tenants. The idea of the 'old home' disappears, and with it local architecture, etc. • for labour will shift about as needed, and must be ready to move. *bag and baggage*.'"³⁵

Le Corbusier saw his city as one which liberated the individual from many of the complications of domestic management, and, foreseeing the disappearance of the domestic servant, sought to include a complete catering and housekeeping service within each apartment building. He felt that his civic conception, by providing for greater ease and convenience in daily activities, would enable all inhabitants to enjoy a more abundant leisure. Specific provisions for leisure activities within the residential districts, however, seemed almost obsessively centered on athletic facilities. Although the apartment houses would be surrounded by tennis courts, swimming pools, and soccer fields, and rooftops would provide sunbathing areas and running tracks, cafes, theaters, libraries, and shops were notably absent. Within the superblock areas it would appear relatively easy to play a game of tennis, but impossible to buy a glass of wine or a spool of thread.

Of perhaps greater importance in the development of the plan, in the architect's **view**, was the system of motor roads embodying the elimination of what he termed the "corridor street," the traditional city street lined with buildings, and clogged with slow-moving, frequently halting motor traffic. Claiming that "a city made for speed is made for success."

Corbusier sought a total separation of motor freeways from building lines and pedestrian ways. In order to ensure the rapid movement of wheeled traffic, the texture of the block pattern was expanded into a grid of superblocks 400 x 600 meters in area, with secondary streets occurring at 200-meter intervals. Motor access to the apartment blocks would lead to parking terminals near the entrances, while pedestrian

circulation paths would cut through the landscaped spaces, passing underneath the buildings which would be raised on pilotis to free the ground area. As Le Corbusier projected his plan, the amount of ground built over would be 15 percent, leaving 85 percent as open space, and with this achieving a population density of 120 persons per acre.

In addition to the motor freeways, the city would be served by a subway and an underground commuter rail system linking the "Garden Cities" to the center. At the center of the city, flanked by four skyscrapers would be a multilevel transportation complex (*Fig. 7*). The upper level would consist of a raised platform serving as a landing field for aircraft—a similar conception having appeared earlier in Sant'Elia's Futurist scheme for the Citta Nuova.

The image of planes landing in the center of the city obviously had considerable appeal for Le Corbusier, who even ventured, "who knows whether soon it will not be equally possible for them to land on the roofs of the skyscrapers, from thence without loss of time to link up with the provinces and other countries. For the moment," he admitted, "the airport allowed for in the centre is a station for air-taxis connecting up with the aerodrome in the protected zone. Means of landing are not yet sufficiently perfect to allow the large transcontinental airplane to make its way safely to the heart of the city."³⁶

Below the airport would be a mezzanine level for rapid motor traffic while slower traffic would circulate at ground level, at which point would be access to railway lines and booking offices. At the first subterranean level would be the subway lines, below which would be the local and suburban railways, while at a still lower level would be the main railway lines. Each of the skyscrapers would contain a subway station.

To Le Corbusier the City for Three Million not only solved all major urban problems of housing and transport, but combined man-made order with natural landscape to create an urban environment of unrivaled beauty. Having proclaimed that "the materials of city planning are **sky**, space, trees, steel and cement, in this order and in this hierarchy," he had created a city of sun-drenched open texture, swept clear of all disorder. His descriptions of the city rhapsodized the joys of rapid driving on the motor freeways, the perception of "immensity of space," of "vast architectural perspectives," with "the sky everywhere, as far as the eye can see."³⁷ The uniform facades of the dwellings would "form a sort of grill or trellis against which the trees will display themselves to advantage,"³⁸ while the skyscrapers would "raise immense geometrical facades all of glass, and in them is reflected the blue glory of the sky. An overwhelming sensation. Immense but radiant prisms The traveller in his airplane, arriving from Constantinople, or perhaps Peking, suddenly sees appearing through the wavering lines of rivers and patches of forests that clear imprint which marks a city which has grown in accordance with the spirit of man: the mark of the

human brain at work. As twilight falls the glass skyscrapers seem to flame." 39

Although the romanticism of the city was somewhat akin in spirit to that of the Futurists, Le Corbusier was at pains to disassociate himself from them and their fevered vision of a world to come. "This," he maintained, "is no dangerous Futurism, a sort of literary dynamite flung violently at the spectator."⁴⁰ "It bores me more than I can say to describe, like some minor prophet, this future City of the Blest. It makes me imagine I have become a Futurist, a sensation I do not at all appreciate. I feel as though I were leaving on one side the crude realities of existence for the pleasures of automatic lucubrations."⁴¹ He insisted that he had designed no city of the future, but a city of the present; that it was for contemporary society and contemporary technology that he had conceived the scheme. The Futurists, moreover, adhered to a conception of mechanization stressing the rapid obsolescence of the physical environment, while Le Corbusier, with his inherent sense of tradition claimed, "It is the city's business to make itself permanent, and this depends on considerations other than those of calculation. It is only Architecture which can give all the things which go beyond calculation."⁴²

As an urban image, the City for Three Million seemed to hover somewhere between dream and reality, but was perhaps more appealing as a dream. The scheme embodied an oversimplification of urban life and function, appearing to some critics as a formal diagram neglectful of many of the factors essential to urban vitality. As Lewis Mumford was later to write of Le Corbusier, "he paid no more attention to the nature of the city and to the orderly arrangements of its constantly proliferating groups, societies, clubs, organizations, institutions, than did the real estate broker or the municipal engineer. In short, he embraced every feature of the contemporary city except its essential social and civic character. ... Le Corbusier wiped out the complex tissue of a thousand little and not so little urban activities that cannot be economically placed in tall structures or function efficiently except at points where they are encountered at street level and utilized by a multitude of people going about their business at all times of the day.

"The extravagant heights of Le Corbusier's skyscrapers had no reason for existence apart from the fact that they had become technological possibilities; the open spaces in his central areas had no reason for existence either, since on the scale he imagined, there was no motive during the business day for pedestrian circulation in the office quarter. By mating the utilitarian and financial image of the skyscraper city to the romantic image of the organic environment, Le Corbusier had in fact produced a sterile hybrid."⁴³

If many observers found the City for Three Million a frigid and inhumanly scaled ambient, inimical to social contact, the reason lay partly in the Olympian formality of the designer's presentation which

embodied a god's-eye view of the large-scale visual aspects, but neglected to deal convincingly with small-scale function. It may be noted that the plan was intended to incorporate within the landscaped spaces in the center of the city, a network of low-rise, three-story buildings fronting on boulevards and pedestrian ways, and containing shops and cafes. "The street," Le Corbusier pointed out, "would thus be reorganized on a human scale. In this City of Skyscrapers we should, in fact, be able to restore just that very scale which is really in conformity with our own dimensions: the one-storeyed house.

"And so my scheme, which at first glance might seem to warrant a certain fear and dislike, brings us back to something we have had to forego with regret in towns of the nineteenth century: architecture to our own scale.

"We are fond of the crowd and the crush because we are human beings and like to live in groups. In such a town as I have outlined, with a denser population than that of any existing cities, there would be ample provision and opportunity for close human contact."⁴⁴

In spite of such reassurance, relatively few viewers seemed able to identify favorably with the conception of urban life implied in the City for Three Million. A contemporary French architectural journal commiserated with the imaginary inhabitants of such a city, "Poor creatures! What will they become in the midst of all this dreadful speed, this organization, this terrible uniformity? ... here is enough to disgust one for ever with 'standardization' and to make one long for 'disorder.' "⁴⁵

THE VOISIN PLAN

For those who had been unnerved by the scale of the City for Three Million, Le Corbusier soon produced an even more alarming exhibition project, a scheme which would apply similar principles to a redevelopment of the center of Paris. Convinced that the motor car had both killed and would save the city, Le Corbusier had approached several automobile manufacturers with a view to obtaining sponsorship for the Esprit Nouveau pavilion at the Paris International Exhibition of Decorative Art in 1925. Voisin had responded favorably, and was subsequently honored by having the exhibition plan named for him.

The proposed scheme would involve demolition and reconstruction to create a new commercial center and residential district: the commercial center designed to occupy 600 acres of a "particularly antiquated and unhealthy part of Paris, i.e. from the Place de la Republique to the Rue du Louvre, and from the Gare de l'Est to the Rue de Rivoli," while the residential district would extend from the Rue des Pyramides to the circus on the Champs Elysees, and from the Gare Saint-Lazare to the Rue de Rivoli, a district which the architect described as "for the most part overcrowded, and covered with middle-class houses now used as offices"⁴⁶ (**Figs. 16-17**). Incorporated in the scheme would be a new motor freeway creating an east-west axis from Vincennes to

Levaillois-Perret, and intended to draw traffic away from the Champs Elysees (Figs. 23-24). Within the area of demolition which comprised much of the historic center of Paris, Le Corbusier intended to leave selected structures untouched, enabling one to find "still standing among the masses of foliage of the new parks, certain historical monuments, arcades, doorways, carefully preserved because they are pages out of history or works of art."⁴⁷

Far from destroying the monuments of the past through his massive demolitions, Le Corbusier claimed to be giving them a more peaceful setting, maintaining that "the past has lost something of its fragrance, for its enforced mingling with the life of today has set it in a false environment. My dream is to see the Place de la Concorde empty once more, silent and lonely, and the Champs Elysees a quiet place to walk in."⁴⁸

Although the new scheme created a sharp and coarse contrast with the existing fabric of Paris, juxtaposing within the low-rise texture of the city the sudden looming presence of 245-meter skyscrapers, Le Corbusier saw no disharmony between his scheme and the ancient city (Figs. 18-22). "The city is once more based on axes, as is every true architectural creation. Town planning enters into architecture and architecture into town planning. If the 'Voisin' plan is studied, there can be seen to the west and southwest the great openings made by Louis XIV, Louis XV, and Napoleon: the Invalides, the Tuileries, the Place de la Concorde, the Champ de Mars and the Etoile. These works are a signal example of *creation*, of that spirit which is able to dominate and compel the mob. Set in juxtaposition the new business city does not seem an anomaly, but rather gives the impression of being in the same tradition and following the normal laws of progress."⁴⁹

As with all his planning schemes, Le Corbusier was at pains to indicate that his proposals were not visionary, but practical and financially sound, able not only to pay for themselves but to produce greatly augmented land values. If sufficient capital for the initial construction were not available in France, then foreign investment should be welcomed. "Are we to offer the center of Paris, with its noble sites and buildings, our national riches and splendour to Americans, English, Japanese or Germans? Yes, certainly."⁵⁰

Although he seldom publicly wavered in support of even his most radical proposals, Le Corbusier realized that the total rebuilding of the historic center of Paris was unlikely to achieve favorable acceptance, and observed, "The 'Voisin' scheme does not claim to have found a final solution to the problem of the centre of Paris; but it may serve to raise the discussion to a level in keeping with the spirit of our age"⁵¹ (Fig. 25).

THE RADIANT CITY

In 1930, Le Corbusier received from officials in Moscow, where he had been at work on the Palace of Light Industry building (The Centrosoyus), a questionnaire regarding the reorganization of the Soviet capital. In formulating his answer, he submitted a series of drawings which constituted an elaboration of the principles of the City for Three Million, and which he termed the "Radiant City" (Figs. 26-27). Although the project had no discernible influence in the Soviet Union, it was exhibited at the Brussels meeting of the International Congresses of Modern Architecture (C.I.A.M.) and through wide publication served further to disseminate the ideas of its creator

Although the new design maintained a rectilinear form, it differed from the City for Three Million in that it was developed along a central spine in such a way that the city could expand on either side. Le Corbusier admitted that a major defect of the previous design lay in its failure to provide for growth. The business district of widely spaced towers was retained, but moved to the upper edge of the city, below which would be the railroad terminal, carrying a rooftop airport. Below this, residential superblocks would flank a central civic axis, housing being restricted to apartment buildings of the setback type. An industrial zone containing parallel bands of factories, warehouses, and heavy industry would extend across the lower edge of the city, separated by a strip of parkland from the housing areas. This scheme eliminated the hierarchic population distribution and the Garden City suburbs of the City for Three Million.

The Radiant City scheme continued Le Corbusier's preoccupation with a biologically wholesome ambient. Urging both internal air-conditioning and external openness, he proclaimed the reconstruction of a natural environment: *Living air, greenery and sky and the desired dose of sun on the skin; and, in the lungs, the living air of wide-open spaces* "52 The craving for sunlight inspired the ideal of a city in which no dwelling would face north, and prompted Le Corbusier eventually to change the design of the cruciform skyscraper to a concave slab in which the dominant facade would be oriented toward the south. Le Corbusier continually infused his writing with a vocabulary of organic imagery, basing the Radiant City on what he termed "the biological unit: the cell of 14 square meters per occupant."53

In later years he was to observe, *HA plan* arranges *organs* in order, thus creating *organism* or *organisms*. The organs possess distinctive qualities, specific differences. What are they? lungs, heart, stomach . . . I am claiming sun, space and green surroundings for everybody and striving to provide you with an efficient system of circulation BIOLOGY ! The great new word in architecture and planning"54 (Fig 32).

In the Radiant City scheme, the principles established in the City for Three Million were developed in greater detail. The road system was designed on a 400 x 400 meter grid providing two-level elevated streets carrying heavy traffic at ground level and rapid motor traffic 5 meters above ground. Passages under the roads would be included for pedestrians and a system of tramways provided at ground level running parallel to the streets (Figs. 29--31).

The neighborhood-unit concept, which had been evolving during the 1920's, was reflected in a somewhat rudimentary way in the Radiant City scheme. The population unit employed was 2,700 people—the number of residents employing a single entrance in an apartment block—and for this group would be provided, in addition to the communal domestic services, a nursery, kindergarten, and primary school. Although no commercial premises were included, the abundant sport facilities seen in the City for Three Million remained. Population density, based on the assumption of 14 square meters of dwelling space per inhabitant, was projected at 400 persons per acre (1,000 per hectare) (Fig. 28).

In advocating the virtues of an open urban fabric, Le Corbusier augmented his existing arguments with the contention that such a building pattern would be relatively resistant to aerial attack in time of war. His assumptions, of course, were based on the experience of World War I and the anticipation of aerial bombardment as it was conceived in the early 1930's.

The conventional city with its closely packed structures and narrow streets would suffer extensive damage through explosion and fire, while the corridor streets and courtyards would retain concentrations of poison gas. Within the Radiant City, however, the dispersed building pattern would make intensive damage less likely, while the water of the ubiquitous swimming pools would aid in firefighting. As the buildings would be raised above the ground on pilotis, poison gas would be dispersed by air currents. Residents of the buildings would take refuge not in underground shelters, but in the upper stories where the dangers of a direct hit would be mitigated through metal plating providing definitive anti-bomb protection.^{H56}

As an architect, Le Corbusier's concern was first and foremost with the physical structure of the city, not with its complex social fabric, and one may easily complain that within the brave new world of mechanization and sun-cult athleticism idealized in his scheme there seems little place for the lame, the halt, the old or the poor. Just as Le Corbusier presupposed an ideal flat site in developing his generalized design, so he seems to have envisioned an ideal urban society, energetic, healthy, efficient, family, sport and work centered.

Le Corbusier was not altogether unaware, however, of a social imbalance in modern cities, believing that it was in part due to the presence of people lured from rural areas by the promise of better conditions, but who were perpetually unable to adjust or contribute constructively to

urban life. Observing these misfits, he was "forced to the conclusion that our cities are bulging with human detritus, with the hordes of people who came to them to try their luck, did not succeed, and are now all huddled together in crowded slums. I knew we should have to say to them one day: there is nothing more for you to do in the city; there is no place for you here; go back where you came from, back to the country. And in that way the cities could be cleaned up."⁵⁷

"The city must be cleared of all the dreams that have burned their wings, the miscarried lives, the dead embers of men and homes and communities that have accumulated around the city's bright furnace and are now stifling it with their dead and sooty weight."⁵⁸

The solution to the problem, Le Corbusier concluded, lay in a revitalization of the countryside to provide the rural citizenry with the advantages of modern living. He appears to have been motivated through association with an agricultural laborer, Norbert Bezard, who had written to him complaining, "There is a fog of disease and despair eating away our very hearts, out here in the country. The French countryside is sick and dying. Corbusier, you must build us the 'Radiant Farm,' the 'Radiant Village.'"⁵⁹

In spite of his fondness for modernization, Le Corbusier did not regard large-scale mechanized farming as suitable for France. The Radiant Farm design which he produced maintained the traditional family farm unit provided with a standardized house on pilotis, a modern barn, and animal and machinery sheds (Fig. 33). Describing the scheme, Le Corbusier maintained, "The entire conception of this farmhouse is dominated by esthetic and ethical factors: light, cleanliness, immaculate domestic equipment. Once he has been provided with a tool so modern and so cleanly designed, the peasant will come to love it and look after it as well as he does his horse or his pig."⁶⁰

Contemplating the countryside as a whole, Le Corbusier foresaw a new era of communication based on the highway, predicting that "the automobile would bring life back to the places that the railroad had cut off, and that a new relationship, a living and supple one, could be established between the city and the country, between the city dweller and the country dweller: a unity of spirit."⁶¹ In redesigning the country village, Le Corbusier considered the town as fundamentally and inescapably a function of the transportation system, of storage needs, of merchandise handling problems."⁶² The Radiant Village (Fig. 34) presupposed a system of rural cooperatives and would include a communal silo, machinery storehouse and a cooperative store. A village club would provide a center for communal life, and an apartment house would replace the single-family housing of the traditional village. With characteristic optimism, Le Corbusier concluded, "When we have done all this, then the land will attract people back to it naturally. *We shall not be able to empty the cities of their superfluous population until the land has been materially and spiritually redeveloped.* When it has, then it will attract all the people who are unsuited to city life back again."⁶³